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MODUL PINTAS
TINGKATAN 5

1449/2

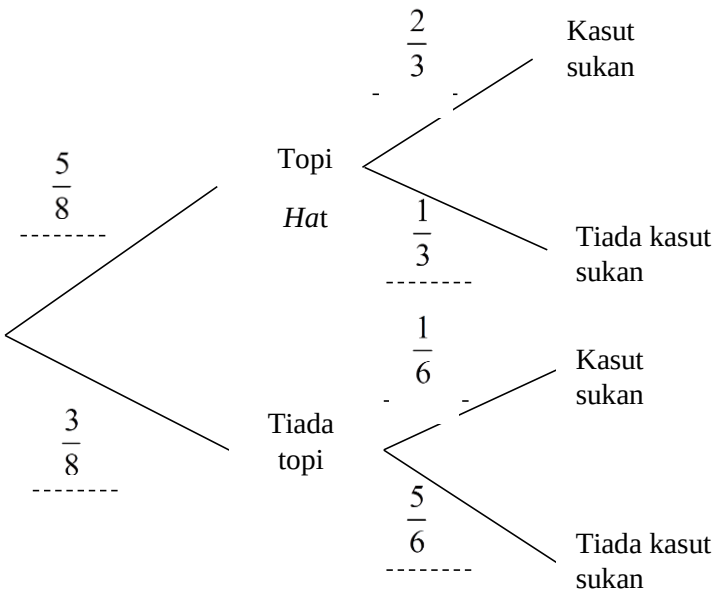
MATEMATIK
Kertas 2

$2\frac{1}{2}$ jam

Dua jam tiga puluh minit

PERATURAN PEMARKAHAN
MATEMATIK K2
1449/2

Soalan	Skema markah / Marking Scheme	Marks	
		Submarks	Total Marks
1	$3x^2 - 11x - 4 = 0$	1 mark	
	$(x-4)(3x+1) = 0$	1 mark	
	$x = 4, x = -\frac{1}{3}$	2 marks	4
2	$\angle HAC$	1 mark	
	$\tan \angle HAC = \frac{24}{\sqrt{356}}$	2 marks	
	51.83°	1 mark	4
	Nota : Kelihatan $\sqrt{10^2+16^2}$ atau $\sqrt{356}$ boleh K1		
3(*a*)	$\frac{1.26}{2 \times 3.142}$	1 mark	
	0.2	1 mark	
(*b*)	$\frac{1}{2} \times 30 \times 30$ *or* $\frac{45}{360} \times \frac{22}{7} \times 11 \times 11$ *or equivalent*	1 mark	
	$\frac{1}{2} \times 30 \times 30$ - $\frac{45}{360} \times \frac{22}{7} \times 11 \times 11$ *or equivalent*	1 mark	
	402.47	1 mark	5
	NOTE: 1. Accept π for marks. 2. Correct answer from imcomplete working award 2 marks.		
4(*a*) (i)	Sebilangan	1 mark	
(ii)	Sebilangan	1 mark	
(*b*)	81 ialah nombor punca kuasa dua sempurna	1 mark	
(*c*)	Jika sudut pedalamannya 60°, maka ΔPQR ialah sebuah segi tiga sama sisi.	1 mark	4

Soalan	Skema markah / Marking Scheme	Marks	
		Submarks	Total Marks
5	$y \geq \frac{3}{2}$ $y \leq -x + 6$ $y < 3x$	1 mark 1 mark 1 mark	3
6	1 400 + 450 – 550 – 350 – 390 – 180 – 750 – RM370 Aliran tunai negatif * Mengurangkan perbelanjaan makanan dengan masak sendiri / bekal atau * Mengurangkan perbelanjaan minyak dengan menaiki kenderaan awam atau *Mengurangkan penggunaan bil utiliti dengan menjimatkan penggunaan elektrik dan air Nota : 1. Kelihatan RM1 850 atau RM2 220 boleh K1 2. *mana-mana 1 atau setara yang relevan diterima	1 mark 1 mark 1 mark 1 mark	4
7(*a*)		2 marks	
7(*b*)	$\left(\frac{5}{8} \times \frac{1}{3}\right) + \left(\frac{3}{8} \times \frac{1}{6}\right)$ $\frac{13}{48}$	1 mark 1 mark	4

Soalan	Skema markah / Marking Scheme	Marks	
		Submarks	Total Marks
8			

Minggu	Pengiraan (km)	Jarak Larian (km)
1	$32 + 32 \times 0.1 = 32(1 + 0.1)$	$3.2(1.1)$
2	$32(1.1) + 32(1.1) \times 0.1 = 32(1.1)(1 + 0.1)$	$3.2(1.1)^2$
3	$32(1.1)^2 + 32(1.1)^2 \times 0.1 = 32(1.1)^2(1 + 0.1)$	$3.2(1.1)^3$
4	$32(1.1)3 + 32(1.1)^3 \times 0.1 = 32(1.1)^3(1 + 0.1)$	$3.2(1.1)^4$

2 marks

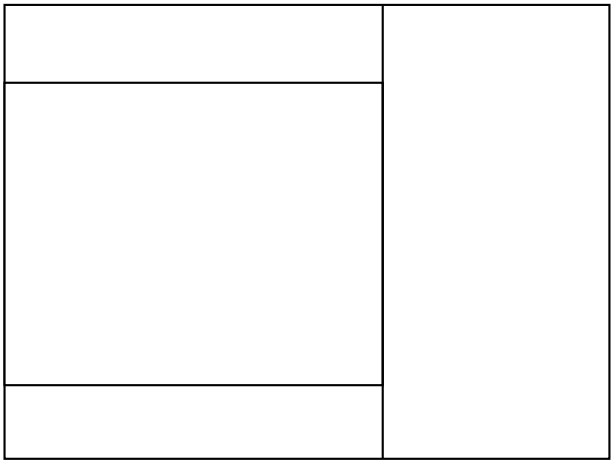
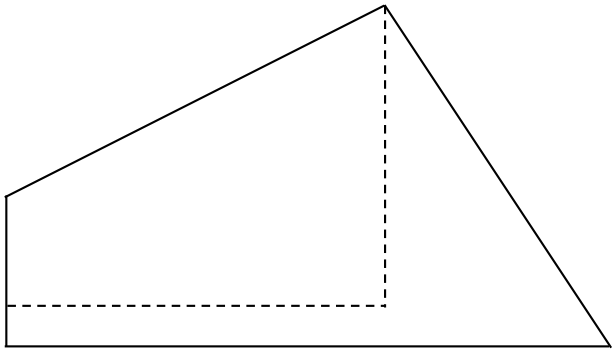
$D(x) = 3.2(1.1)^n$ — 2 marks — 4

Atau

$D(x) = s\left(1 + \frac{r}{100}\right)^n$, boleh N2

$s = larian, r = \%\ tambahan\ jarak$

9(*a*)	$m = \frac{3}{4}$	1 mark	
(*b*)	$m = \frac{4}{3}$	1 mark	
	$6 = {}^{*}\left(\frac{4}{3}\right)(2) + C$ **OR** $\frac{y-6}{x-2} = {}^{*}\left(\frac{4}{3}\right)$ *or* equivalent	1 mark	
	$y = \frac{4}{3}x + \frac{10}{3}$ *or* equivalent	1 mark	4
10(*a*)	RM300 000	1 mark	
(*b*)	RM24 300	1 mark	
(*c*)	Tidak	1 mark	
	Encik Eric dan Pn Lisa hanya akan menerima pampasan maksimum RM296 800 kerana deduktibel sebanyak RM3 200 *or* equivalent	1 mark	4

Soalan	Skema markah / Marking Scheme	Marks	
		Submarks	Total Marks
11(*a*)		4 marks	
11(*b*)		5 marks	9
12 (*a*)	(i) 10	1 mark	
	(ii) $\frac{10-6}{5-0}$ *or equivalent*	1 mark	
	$\frac{4}{5}$ *or equivalent*	1 mark	
	Note: 1. Accept correct answer without working for 2 marks.		
(*b*)	$\frac{1}{2}\times(6+10)\times 5$ *or equivalent*	1 mark	
	$\frac{1}{2}\times(t-5)\times 10$ *or equivalent*		
	$\frac{1}{2}\times(6+10)\times 5=\frac{1}{2}\times(t-5)\times 10$ *or equivalent*	1 mark	
	13	1 mark	6

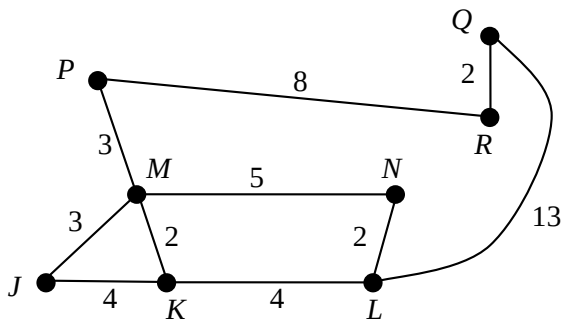
<table>
<tr><th>Soalan</th><th>Skema markah / Marking Scheme</th><th colspan="2">Marks</th></tr>
<tr><th></th><th></th><th>Submarks</th><th>Total Marks</th></tr>
<tr><td>13(a)(i)</td><td>157</td><td>1 mark</td><td rowspan="5">10</td></tr>
<tr><td>(ii)</td><td>162</td><td>1 mark</td></tr>
<tr><td>(iii)</td><td>169</td><td>1 mark</td></tr>
<tr><td>(iv)</td><td>12</td><td>1 mark</td></tr>
<tr><td>13(b)</td><td>
<table>
<tr><th>f</th><th>Titik tengah, x</th><th>fx</th><th>x²</th><th>fx²</th></tr>
<tr><td>6</td><td>123</td><td>738</td><td>15 129</td><td>90 774</td></tr>
<tr><td>9</td><td>128</td><td>1 152</td><td>16 384</td><td>147 456</td></tr>
<tr><td>13</td><td>133</td><td>1 729</td><td>17 689</td><td>229 957</td></tr>
<tr><td>18</td><td>138</td><td>2 484</td><td>19 044</td><td>342 792</td></tr>
<tr><td>14</td><td>143</td><td>2 002</td><td>20 449</td><td>286 286</td></tr>
<tr><td>10</td><td>148</td><td>1 480</td><td>21 904</td><td>219 040</td></tr>
<tr><td>$\sum f =$ 70</td><td></td><td>$\sum fx =$ 9 585</td><td>$\sum fx =$ 110 599</td><td>$\sum fx^2 =$ 1 316 305</td></tr>
</table>
$Min, \bar{x} = \frac{9585}{70}$
136.9286
Varian, $\sigma^2 = \frac{1316305}{70} - \left(\frac{9585}{70}\right)^2$
54.9235
Sisihan piawai, $\sigma = \sqrt{54.9235}$
7.41
</td><td>1 mark

1 mark

1 mark
1 mark
1 mark
1 mark</td></tr>
</table>

Soalan	Skema markah / Marking Scheme	Marks	
		Submarks	Total Marks
14(*a*)	$V \propto \frac{1}{P}$ atau $2 = \frac{k}{500}$	1 mark	
	$V = \frac{1000}{P}$	1 mark	
(*b*)	<table><tr><td>*P*</td><td>100</td><td>200</td><td>250</td><td>400</td><td>500</td><td>800</td></tr><tr><td>*V*</td><td>10</td><td>5</td><td>4</td><td>**2.5**</td><td>2</td><td>1.25</td></tr></table>	1 mark	
(*c*)	Graph Axes are drawn in the correct direction, uniform scale for $0 \le P \le 800$ and $0 \le V \le 10$.	1 mark	
	5 points and 1 point* plotted accurately	1 mark	
	Smooth and continuous curve without straight line(s) and passes through all the 6 correct points $0 \le P \le 800$ and $0 \le V \le 10$.	1 mark	
	Notes : (1) 5 points plotted correctly award 1 mark (2) Other scale being used, subtract 1 mark	1 mark	
(*d*)	$3.2 \le V \le 3.4$	1 mark	8
15(*a*)	(i) $(-6,\ 3)$	1 mark	
	(ii) $(3,\ 1) \rightarrow (0,\ 3)$	2 mark	
(*b*)	(i) pantulan pada garis lurus $y = -x$ atau garis *AD* *reflection in the line* $y = -x$ *or line AD*	2 mark	
	(ii) putaran 90^0 ikut arah jam pada pusat $(-6,\ 6)$ *rotation of* 90^0 *clockwise about the centre* $(-6,\ 6)$	3 mark	
(*c*)	(i) Faktor skala = 3 / *scale factor* = 3 Pusat pembesaran = $(-6,\ 3)$ / *centre* = $(-6,\ 3)$	1 mark	
	(ii) $3^2 \times$ luas *ABCD* = 412.2	2 mark	
	luas *ABCD* = 45.8 m^2	1 mark	12

Soalan	Skema markah / Marking Scheme	Marks	
		Submarks	Total Marks
16(*a*)(i)	$2x + x = 42 - 14 - 3 - 9 - 2 - 2$	1 mark	
	$x = 4$	1 mark	
	$9 + 2 + 2 + 8$	1 mark	
	21	1 mark	
(ii)	$3 + 2 + 9$ atau 14	1 mark	
(b)(i)	$5x + 35y = 352$ atau $40x + 32y = 332$	1 mark 1 mark	
(ii)	$\begin{pmatrix} 52 & 35 \\ 40 & 32 \end{pmatrix}\begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 392 \\ 332 \end{pmatrix}$	1 mark	
	$\begin{pmatrix} x \\ y \end{pmatrix} = \frac{1}{52(32) - 35(40)}\begin{pmatrix} 32 & -35 \\ -40 & 52 \end{pmatrix}\begin{pmatrix} 392 \\ 332 \end{pmatrix}$	1 mark	
	$x = 3.5$	1 mark	
	$y = 6$	1 mark	
16(*c*)	$[105 \times 220] - [120 \times 50] - \left[\frac{1}{2} \times 50 \times 105\right]$	3 marks	15
	14 475	1 mark	

Soalan	Skema markah / Marking Scheme	Marks	
		Submarks	Total Marks
17(*a*) (i)	$124000 \times \frac{90}{100}$ *or* 111 600 *or* equivalent	1 mark	
	$111600 + 111600 \times \frac{2.5}{100} \times 7$ *or* equivalent	1 mark	
	131 130	1 mark	
17(a)(ii)	$\frac{158596}{9 \times 12}$ *or* $\frac{131130}{7 \times 12}$ *or* equivalent	1 mark	
	Bank Sejahtera : 1 468.48	1 mark	
	Bank Tenang : 1 561.07	1 mark	
17(*b*) (i)	Jabatan Pengangkutan Jalan atau JPJ	1 mark	
(ii)	200	1 mark	
(iii)	$200 + (1799 - 1600) \times 0.40$ *or* equivalent	1 mark	
	279.60	1 mark	
17(*c*) (i)	 Note: Accept any orientation of graph with correct vertices and edges. All vertices and edges correctly drawn without weightage, award P1. Accept 2 mistakes of vertices and / or edges for P1.	2 marks	
(ii)	$J \rightarrow K \rightarrow L \rightarrow N \rightarrow M \rightarrow P \rightarrow R$	1 mark	
	26	1 mark	
(iii)	20	1 mark	15

Soalan 14 (*c*)
Question 14 (*c*)

Langkah penyelesaian soalan 17 (sebagai rujukan)

17 (*a*) (i)

Jumlah pinjaman = $124000 \times \frac{90}{100}$

$= 111600$

Jumlah bayaran balik, A;

$A = P + Prt$

$A = 111600 + 111600 \times \frac{2.5}{100} \times 7$

= RM 131 130

(ii)

Bank Sejahtera;	Bank Tenang;
Ansuran bulanan $= \frac{131130}{7 \times 12}$	Ansuran bulanan $= \frac{158596}{9 \times 12}$
= RM 1 561.07	= RM 1 468.48

(*b*) (i) Jabatan Pengangkutan Jalan / JPJ

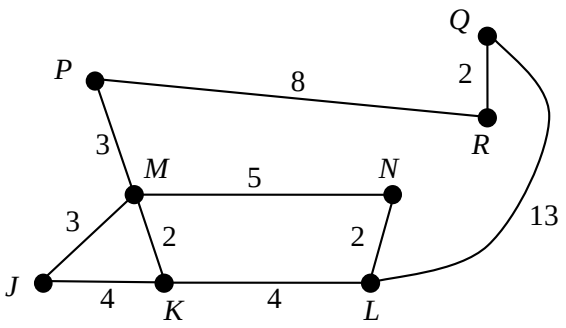
(ii) Kadar asas bagi kategori 1 799 cc = RM200.00

(iii) Jumlah cukai jalan = Kadar asas + kadar progresif

$= 200 + (1799 - 1600) \times 0.40$

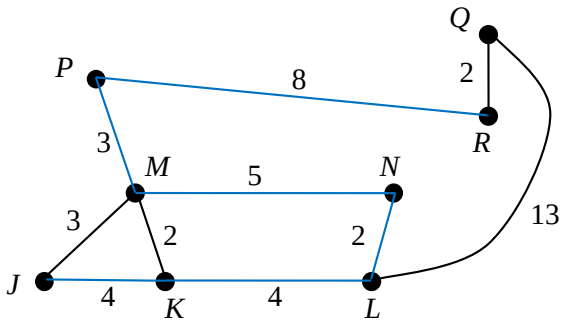
= RM 279.60

(*c*) (i)



(ii) $J \rightarrow K \rightarrow L \rightarrow N \rightarrow M \rightarrow P \rightarrow R$

= 4 + 4 + 2 + 5 + 3 + 8 = 26 km



(iii) Jumlah darjah; $\Sigma d(v) = 2E$

= 2(10)

= 20